NEW YORK STATE MECHANIC.

Under the Direction of the New York State Mechanic Association.

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KNOWLEDGE FOR THE PEOPLE.

LIGHT AND FLAME.

Why may light and air be said to constitute a portion of our earth?

Because of their absorption by the earth. Thus, the light emitted by burning coals, (which are generally admitted to be of vegetable origin) has undoubtedly been condensed in them by a process of nature which bids defiance to conjecture.—*Mr. Detrosier of Manchester.*

Why does a fire give out warmth?

Because the heat is *radiated;* there being but little connexion with the immediate conducting power of the air; thus, if a concave *metallic* mirror be held opposite the fire, a heating and luminous focus will be obtained.

Why is ice produced in India?

Because chiefly, of the high radiating powers of the dry straw which is strewed in the inclosures, containing the water in shallow dishes. Calm and serene nights are most favorable to this operation, and it is necessary that the straw should be dry; for, when wetted, the production of cold is prevented; a circumstance which shows that evaporation is not the cause of the diminished temperature. We quote this from Brande, although the conclusions do not concide with the opinion previously quoted from Arnott.

Why do plants flourish in the dark?

Because no oxygen is then produced by them, and no carbonic acid absorbed.

Why does the wire-gauze prevent explosion?

Because the meshes of the gauze are of such a size that a flame of the gas attempting to pass through it, is so cooled by the heat-absorbing and heat-conducting power of the metal, as to be extinguished; or, in fewer words, the temperature of the flame is so much lowered as to be insufficient to ignite the inflammable mixture on the outside.

Why do firemen, by the protection of Aldini's incombustible cloth and wire-gauze, remain for two or three minutes completely enveloped in flames, without injury?

Because, perilous as their situation may appear, they are supplied in some way with pure air. Gay Lussac observes, that when a furnace is heated so as to flame and smoke, the air within is entirely deprived of oxygen; and therefore it is certain, that if the immediate action of the flames were guarded off by the wire gauze, still it would be impossible to sustain respiration in the midst of them. There are several ways of accounting for the requisite supply of air; and one which M. Gay Lussac suggests appears the most probable, viz: that the men are supplied by a current of fresh air from the space between the two garments. Besides this, we cannot suppose that their heads are constantly enveloped in the flames, and they, of course, find favorable moments for breathing; again, the power of suspending the breath is also an excellent resource, which every fireman ought by practice to acquire. The fireman has also another difficulty to contend with, in the dense volumes of smoke, which prevent his breathing, blind his sight, and consequently retard his exertions. To obviate this, it has been proposed to furnish a supply of air from a portable reservoir; or by means of a flexible tube, rising from the feet to the mouth, through which the fresh air would naturally rise as the heated air escaped above.—*Phil. Mag.* 1830.

COMBUSTION.

Why are certain bodies combustible?

Because of an intense chemical action which takes place in them, and is connected with their electrical energies; for, all bodies which powerfully act upon each other are in the opposite electrical states of positive and negative; and the disengagement of heat and light, (which characterises combustion,) may depend upon the annihilation of those opposite states, which happens whenever they combine.

Why does a common fire smoke?

Because of the vapor of the water from the moisture of the fuel; and the carburetted hydrogen and bituminous substances, formed during combustion by the union of the hydrogen of the combustible with the oxygen of the atmosphere

Why does a draught support a fire?

Because it flows towards the fire place, to occupy the vacancy left by the air that has undergone decomposition, and which, in its turn, becomes decomposed also. Hence, a supply of caloric is furnished without intermission, till the whole of the combustible is saturated with oxygen.—*Parkes.*

Why do not coals, wood, &c., being combustibles, take fire on exposure to the air?

Because all such bodies require to have a certain preparatory temperature, before beginning to combine with the oxygen of the atmosphere.

Why is heat produced by combustion?

Because of the decomposition of the oxygen gas of the atmosphere; for, as the oxygen combines with the combustible body, it disengages the caloric which is held when in the state of a gaseous substance. Or to speak with more precision, the act of combustion effects a real analysis of atmospheric air; for while the oxygen combines with the combustible, the calorie, in the form of sensible heat, is thrown off in every direction.

Why do lamps with many wicks, placed near each other, give much more light than the same number of wicks would, if placed in separate lamps?

Because the light given out by a combustible body is in proportion to the elevation of temperature; and in this case the many wicks communicate heat to each other.

Why is oxygen a powerful supporter of combustion?

Because it is more abundantly diffused throughout nature than any of the other elementary bodies; it forms eight-ninths of the weight of water, about one-fifth of the weight of the atmosphere, and a relative proportion of the earthy and mineral bodies which form the solid matter of the globe. Hence, it is present everywhere, and ready to unite itself with any matter exposed to it at the necessary temperature.

Why is oxygen gas called vital air?

Because it is a powerful supporter of respiration. Thus, a small animal confined in oxygen gas, lives thrice as long as when confined in the same bulk of common air; but we are not thence to conclude that it is fit for the support of life; on the contrary, an animal made to breathe oxygen for any great length of time, falls a sacrifice to excess of arterial action; and after death, the blood in the veins is found as florid as that in the arteries.

Why is not a goblet, when pushed into water with the mouth downwards, filled with water?

Because the air in the goblet resists the entrance of the water; and, if the goblet be inverted over a floating lighted taper, this will continue to float under it, and to burn in the contained air, however deep in the water it be carried, exhibiting the curious phenomenon of a light below water, and itself an emblem of the living inmate of a diving bell, which is merely a larger goblet, with a man instead of a candle.

Why is the name fuel given only to the substances which combine with oxygen, and not to the oxygen itself?

Because, probably, the former being solid or liquid, and therefore more obvious to sense, were known as producers of combustion long before the existence of the aëriform ingredient was even suspected.—*Arnott.*

Why does a candle or lamp smoke?

Because the heat produced by it is not sufficient to effect the total combustion of the carbon, which rises in its flame.—*Arnott.*

SPONTANEOUS COMBUSTION.

Why are human bodies sometimes destroyed by spontaneous combustion?

Because of a new arrangement of the muscles, tendons, viscera, &c.; or new products originating from their degeneration.

Numerous instances of this mortal catastrophe are recorded. M. Julia de Fontenelle, in a paper lately read to the Academy of Sciences at Paris, describes fifteen cases, from the details of which the following general results are obtained:

1. Generally those who have died by spontaneous combustion have indulged in excess of spirituous liquors. 2. The combustion is almost always general, but in some cases it may be partial. 3. It is rare amongst men, and the women have in almost every case been aged. 4. The body and the viscera have always been burnt, whilst the feet, hands and crown of the head have almost always been saved. 5. Although it is known by experience that a very large quantity of wood is requisite to burn a corpse, this particular kind of incineration occurs without inflaming the most combustible substances of an ordinary kind near it. 6. It has not been shown, in any case, that the presence of fire is necessary to commence this kind of combustion. 7. Water, instead of extinguishing the flame, appears to give it more activity; and when the flame has disappeared the combustion proceeds within. 8. They occur more frequently in winter than in summer. 9. The cure of general combustions has never been effected, but sometimes that of partial ones. 10. Those seized with combustion experience a sensation of strong internal heat. 11. It is suddenly developed, and consumes the body in a few hours. 12. Those parts not reached by the fire are affected by gangrene. 13. A putrid degeneration ensues, which causes gangrene. 14. The residue of this combustion is composed of greasy cinders and an unctuous matter.

MISCELLANEOUS.

Why do sailors at sea throw pieces of burnt biscuit in bad water?

Because it serves as charcoal in destroying the putrid flavor of the water, and rendering it comparatively fresh.

Why is Plumbago improperly called black lead?

Because it consists of iron and a certain proportion of carbon; and thus there is no lead in its composition. Many other instances might be adduced, in which the names of substances have given false ideas of their nature and properties. Thus white and green copperas contain no copper, but are formed, the one with zinc, the other with iron.

Why is cast iron submitted to a long intense heat to be converted into wrought iron?

Because by this means the carbon burns, and uniting with the oxygen, both go off in the state of carbonic acid gas.

Why do pit coals vary in quality?

Because of the different proportions of carbon and bitumen which they contain; but carbon is the chief ingredient in all.

Why has the practice of lining wells with brick been condemned?

Because bricks soften the hardest water, and give it an aluminous impregnation.

Why is water universally found throughout nature?

Because it possesses a large range of affinity for natural bodies, of which it is capable of dissolving a greater number than any other fluid. It is found not only throughout the earth in an uncombined state, with its particles in the different aggregates either of ice, water, or vapor, but in a permanent and chemical union with a vast number of substances, solid, fluid and gaseous. The air of the atmosphere, and even that which is considered the driest, contains much water in solution. Many solid minerals, and crystalized neutral salts, contain water in their composition; some of the latter to more than half their weight.

Why is hard water often improper for dyeing?

Because it contains salts with an earthy basis, which precipitate upon the stuff during boiling, and thus prevent the access of the coloring particles. Some of the earthy salts are indeed used in dyeing, but to alter and heighten particular colors. Well water is preferred in dying red, and other colors that want astringency; as well as in the dyeing of stuffs of loose texture, as calico, fustian and cotton.

Why is the purest water that which falls from the atmosphere?

Because, having touched the air alone, it can contain nothing but what it gains from the atmosphere, and it is thus distilled without the chance of those impurities which may exist in the vessels used in an artificial operation.

Why is rain water collected in towns less pure than elsewhere?

Because it always acquires a small quantity of sulphate of lime, and carbonate of lime, obtained from

proved harrow, for lateral unevenness of ground, with blade teeth. Another beautiful and excellent practical instrument was Laydon's *plow cultivator*, manufactured in West Troy. We noticed another rather savage looking machine, which we took for some newly invented instrument of war, but which we were informed was only intended for cutting grain, being, in fact, a reaper, worked by horse power, and instead of cutting off men's legs performed a much better service in cutting down grain—*they say* it works well, and we don't know why it shouldn't.

There was almost as great a variety of straw cutters as of plows, and most if not all of them as good as man need desire. There was Botts & Burfoot's patent; Sinclair's patent; Styrdik's hay, straw and stalk cutter, made at Fishkill Landing; Hovey's straw and corn cutter; Bostwick's patent, of New York; Kell's patent, of Claverack. Among the horse rakes, I. Downer exhibited his patent; and L. Stimson, of Bethlehem, two kinds. We noticed two or three kinds of threshing machines, among which was the excellent patent of our fellow townsman, Mr. Pitts.

We cannot stop to enumerate the hosts of cattle, cows, oxen, sheep, swine, &c., &c., nor can we convey, by a written description, any thing like an adequate idea of the various agricultural products, treasures of the dairy, and the fruits of the field, the garden, the orchard and the flower bed. Apples, peaches, pears, plums, apricots and quinces, of a thousand varieties, were arrayed around in the utmost profusion; while various specimens of needle work and embroidery, with paintings of fruits and flowers, literally tapestried the walls. Some of the paintings of fruit, &c., by Miss Wagner, of this city, were unrivaled for beauty.

The mechanics also had a large tent appropriated to receive the productions of their skill and ingenuity, and the perpetually crowded state of the tent sufficiently attested that they commanded no small share of attention.

Mr. Meneely, of Troy, exhibited a town clock, with bell and all attached, in motion, together with several large and beautifully finished church bells, and also many kinds of leveling and surveying instruments, of most beautiful construction and finish.

Mr. O. Churchill, of this city, a number of elegant rifles, guns and pistols, with "fixins" and appendages. Messrs. W. & B. Tucker, also of this city, a number of highly finished chairs, of different kinds. Mr. L. G. Smith, No. 1 Exchange, several hats of the latest style and excellent workmanship. Messrs. Rosenkrans & Ovens, blacking that would put Day & Martin to the blush, and ink as black as Erebus and as flowing as oil. Segars, by T. B. Ridder; door knobs and plates, by O. B. Oakly; beautiful specimens of binding, by H. Corning; stoves, by Atwood, and also by Mott, Douglass, and others; enameled centre tables, by J. Nixon; coverlets, carpets, &c., by A. Koonz; harness, saddles, &c., by L. J. Lloyd; plated ware and well finished urns, by John Iggett; coffins, from S. Pincott; cradles, by — ——; cutlery, by E. Owen; planes and carpenters' instruments, by Gibson, of this city; pottery, by J. Henry, who also exhibited a furnace for burning anthracite coal in full blast; leather of every variety, including the newly invented hose leather, by J. Hochstrasser; furs, muffs, and caps of several kinds, by J. Bryan & Son; with numerous other articles, by far, as the advertisers say, too numerous to mention.

Outside of the tent we saw a beautiful fire engine, built by the patentee, Mr. Rodgers, of this city, on an improved plan, a description of which we published in the Mechanic some time since. We noticed also some beautiful sleighs and cutters of unrivaled finish, from the establishments of Messrs. Goold & Co., and J. D. W. Wemple, together with some elegant wagons and carriages, from ——.

Among the most curious objects that met our eye was a card manufacturing machine, which, by the simple turning of a crank, cut and bent the wire from the reel, punched the hole in the leather, inserted and clinched the teeth, and all this with incredible rapidity, producing in a few minutes that which, if performed by hand, would take many hours.

There were many other articles; a new and improved washing machine, steam cooking apparatus, with divers and sundry specimens of nearly every manufactured article with which we are acquainted.

Besides, there were several other curiosities in the bestial line, a herd of Buffaloes from Arkansas, an ox weighing over two tons, and a hog weighing fourteen hundred pounds.

In short, it was an exhibition well worthy of the empire state, and no New Yorker could visit the grounds without being struck with the progress of the useful arts, and forming a still higher opinion of the industry and enterprise of the inhabitants of the first state in the Union. We can only say, in conclusion, that we hope the agricultural society, under whose auspices these annual fairs were first established, will continue to prosper, and carry on the great work which they have commenced so gloriously. The improvements of the past few years, in every branch of agricultural industry, sufficiently attest the utility of the society. Mechanics of New York! ye also can profit by the example.

RIOT IN PHILADELPHIA.

One of those outbreaks, so common among the mechanics of England on the introduction of new labor-saving machinery, but less frequent among us, occurred at Philadelphia on Thursday of last week. The sheriff had received in the morning of that day an intimation that an attempt would be made to burn the factory of Mr. Kempton, at Manayunk, by a party of hand-loom weavers from the city and district. Measures were immediately taken to counteract the objects of the plot, and a company of volunteers was called out to check any attempted outrage during the night. A number of the citizens on horseback took up positions in the suburbs, on the various streets and lanes, to give notice of any demonstrations that might be made by the insurgents. About 2 o'clock in the morning some two or three hundred of the mob made an assault upon the outposts with various kinds of weapons, and wounded two or three severely with fire arms. The fire being promptly returned, the mob was quickly dispersed; but in the meantime the alarm was spread, the bells rung, and the whole region thrown into the greatest alarm and confusion. The origin of this mischievous affair, was a machine introduced by Mr. Kempton, by which one woman is enabled to do the work of six or eight men at their hand looms. There is no doubt the weavers are or will be sensibly affected by a machine which makes so great a reduction of hand labor; but it is the most absurd thing in the world to resort to violence for relief. The progress of invention cannot be checked by any such means. Nearly all the machinery we now have in the various departments of labor has been obnoxious to the same objections, yet who can calculate how much greater would be the calamity should it be demolished.

BATHING.—It would seem to be hardly necessary to remind our readers of the necessity of frequent bathing, at all seasons, not only for the promotion of health and comfort, but that of cleanliness also. It is one of the necessaries and luxuries of life, which all should attend to as punctually, at stated times, as their dinners. Yet the practice is commonly neglected. The operation may be performed with very simple apparatus, by any person in his own room; but those who may wish to enjoy it in the highest state of luxury, will find the establishment of Mr. Beecher, 121 Broadway admirably fitted up for the purpose, and provided with every convenience for baths of any desired temperature.

We notice by the political prints that Wm. H. Peck, of Brooklyn, late president of the state mechanic association, is talked of for the office of state senator, from that district. We are glad to see that efforts are being made to get more really practical men, laborers and mechanics, into our legislative councils. Were there more, we doubt not it would be better far for our country.

LUDICROUS ERROR.—Jack Hinton, in the Troy Whig, thus apostrophises: "How shall I trace this, the happiest period of my life! when days and weeks rolled on, and left no track behind, save in that *delicious clam* that stole over my senses gradually and imperceptibly!"

ENORMOUS CHIMNEY.—A chimney 436 feet in height has been erected at Glasgow, Scotland, for a chemical establishment, in order to carry off the noxious odors that are evolved in the process of manufacture. It is constructed of brick, 46 feet in diameter at the bottom, 40 at the top of the ground, and 13½ at the apex, and is the king chimney of the world.

PUSSEYISM.—There is a great deal said about this matter lately in the religious papers, which seems to be some sort of modern heresy, unknown to the fathers. We have ruminated upon it, and turned it on all sides, and viewed it in different aspects, without being able to determine whether it is *pus-syism*, having reference to that comfortable, parson-like obesity, that few of our American preachers attain, a token of fat living and good appetite: or *pussey-ism*, in allusion to caterwauling, or anything feline in its bearings: or *pew-seyism*, a quarrel about church pews, which sometimes takes place among those members of a congregation whose devotions do not always soar above the earth and its interests, for instance like the case of Charles Campbell vs. Daniel Campbell, in which the former seized the latter in his pew, violently dragged him out and pitched him down

...iery stairs! Peradventure neither of these, ...something quite as appalling.

INTEMPERANCE IN ENGLAND.—It is stated in a circular of the British and Foreign Temperance society, that there are 600,000 habitual drunkards in Great Britain, of whom 57,000 die annually.

The time is not far gone when we bore the palm for the manufacture of *whiskey* in this country, and there is still enough left to brag of; but we must yield to the British in the *beer* line. We have not a knowledge of the extent of temperance reform in John Bull's dominions for the last ten years, but no farther back than that, there were annually more than *thirty million* bushels of barley converted into malt in Great Britain; and more than eight million barrels of beer, four-fifths of which was strong beer, were brewed yearly. It was computed that 46,727 acres were occupied in the cultivation of hops.

CORRESPONDENTS.—The poetical articles of J. H. B. have been mislaid, but will probably come to light soon

The article of W. D. W. is not altogether appropriate to our columns; but we shall endeavor to find room for it.

SYRACUSE MECHANICS.—The association of mechanics at Syracuse held their first regular meeting since their organization on Tuesday, 4th October, when an address will be delivered by the president, D. C. Smith, and an essay read by C. F. Williston. The *State Journal*, in noticing the society says, that in aim and objects, it has no connection with the party politics of the day, but is intended to unite the mechanics of the village more closely on all questions connected with the moral and intellectual elevation of the whole body of mechanics. With such an end in view, we earnestly recommend this association to the favorable notice of the mechanics of the village.

SYNOPSIS OF NEWS, ETC.

William Norris, of Philadelphia, built a locomotive called the Simon Snider. It recently hauled, on an inclined plane, fifty-five cars, loaded with coal weighing exclusive of engine and tender, 683,200 lbs., or 305 gross tons, of 2,240 lbs. The engine weighs, with water and fuel, nine tons; cylinder ten and a half inches in diameter, eighteen inch stroke. This is the heaviest load ever hauled by an engine of equal weight in this country.

It is stated that Abbott Lawrence, Esq., is proprietor of a factory at Lowell, which employs 1,290 females, average wages $2 per week—and 200 males, average wages $4 80 per week. They manufacture 210,000 yards of cotton cloth per week.

Mr. John Chase, one of the conductors of the steam mill near Newark, Wayne co., was killed week before last, while oiling the machinery. His apron caught in the cogs of the wheels, and being thus drawn in between them, he was crushed to death, before he could be extricated.

A southern paper thinks it something very strange that patrons to a newspaper are more liberal in giving an editor advice, than to give him their money.

A Panther, measuring six feet in length from head to tail, was killed in the south part of Keeseville, one day last week, by a young man by the name of Derby. His weight was 93 pounds.

The Madison (Indiana) Courier says:—"Our mayor is a cabinet maker; our marshal a blacksmith; the city collector a plasterer; the secretary a carpenter; the assessor a pattern maker; the collector a tobacconist; three of the nine councilmen are tailors, two are carpenters, one a machinist, one a wagon maker, one a millwright, and one a fanmill maker. Let any other city in the United States beat us if they can. Who will say we are not workingmen?"

A mammoth cave has been discovered in New York, to which no end has yet been found. It is suggested that Mr. *Cave* Johnson, now in Congress, should be employed to explore it.—*Pittsburgh Sun.*

The New York common council have finally appointed the 14th day of October for the long talked of Croton celebration, and appropriated $2,000 to defray the attendant expenses.

Two females were brought before the criminal court of Philadelphia, a few days since, on a charge of *eaves-dropping*, and bound to answer the charge.

There died lately, says a German paper, in the village of Felsoe Foerock, in Transylvania, a farmer, named Terebesi, in the 135th year of age. He always enjoyed good health, and worked in the field until just before his death.

A letter from Bologna states that on the 13th ult. two of the floors of the Abbadia, a benevolent institution, gave way, with between seven and eight hundred poor workmen in them, bearing every thing to the ground. Immediate aid was afforded, but a length of time elapsed before all the victims of the accident could be extricated from the ruins. Three persons were killed, and upwards of seventy wounded, some of them dangerously.

A large portion of the steam foundry of Messrs. A. Cheney & Co., Ogdensburgh, was destroyed by fire, on Saturday, the 10th inst. No insurance.

A prolific vein of gold, extending nearly twenty miles, has been discovered near the bay of Francisco, in Upper California.

It is stated in the English papers received by the Acadia, that Austria has reduced her duty on raw cotton.

A correspondent of the Albany Argus states that since the passage of the tariff bill the factories of the Messrs. Wilds, at Columbiaville, in Columbia county, have stopped, and for the reason that the workmen would not consent to a reduction of 25 per cent. on their wages. The same correspondent says that the operatives at the Troy and Cohoes factories have had notice of a reduction of 20 per cent.

It is shrewdly conjectured by somebody that a hop field affords the most extensive prospect in the world, because the view extends from *pole to pole.*

Parson Miller has succeeded in frightening an old lady, in a neighboring town terribly. "Oh heavings!" cried she the other day, "if the world does come to an end what shall I do for snuff?"

A Millerite advertises in an eastern paper that as the *world will be destroyed in April next*, he has procured a handsome pair of horses and wagon, and is prepared to carry the timid, at a small price, *out into the country.* Shrewd notion.

The daily number of attendants at the camp of the Millerties at Taunton, averages from 2 to 5000. They have 30 to 40 tents erected. The number of converts to the *true* faith is represented as quite multitudinous.

We notice in the Boston papers that a patent has been taken out for cleaning fish down east, by giving them snuff, when they *sneeze* their scales clean off. The patentee *nose* a thing or two.

The *I-own-ic*, is a most interesting order of architecture—particularly for private dwellings.

SHERIFF'S OFFICE, City and County of Albany, Sept. 8th, 1843—ELECTION NOTICE—A general election is to be held in the county of Albany on the Tuesday succeeding the first Monday of November next, at which will be chosen the officers mentioned in the notices from the Secretary of State, of which the following are copies. AMOS ADAMS, Sheriff.

STATE OF NEW YORK, Secretary's office. } Albany, August 31, 1843.

To the Sheriff of the County of Albany:

Sir—Notice is hereby given that at the next general election to be held on the Tuesday succeeding the first Monday of November next, the following officers are to be elected, to wit:

A Governor and Lieutenant Governor of this State.

A Senator for the Third Senatorial District, to supply the vacancy which will accrue by the expiration of the term of Alonzo C. Paige, on the last day of December next.

Also, the following county officers, to wit: Three Members of Assembly.

Yours, respectfully, S. YOUNG, Sec'ry of State.

STATE OF NEW YORK, Secretary's Office. } Albany, Sept. 7, 1843.

To the Sheriff of the County of Albany:

Sir—Notice is hereby given that at the next general election to be held on the Tuesday succeeding the first Monday of November next, a Representative in the 28th Congress of the United States is to be elected for the Thirteenth Congressional District, consisting of the city and county of Albany.

Yours, respectfully, S. YOUNG, Sec'ry of State.

BOOK BINDING.—HARVEY H. CORNING, sign of the golden ledger, 82 State street, Albany, carries on the above business in all its various branches, viz: PLAIN, EXTRA and SUPER EXTRA—has a first rate RULING MACHINE and other necessary implements for manufacturing BLANK BOOKS of every description, on the most reasonable terms, of the best materials and workmanship.

N. B. An assortment kept on hand. 37.

EASTERLY'S PARLOR GRATES.

We have examined the improved parlor grates of Mr. Easterly, of which the above is a representation. They are intended for burning wood or coal, and a patent has been secured for the improvement, which consists in closed projecting ends, or sides, to that part which extends from the frame into the room; it makes a far better finish, and is altogether superior in style, and has these advantages over the old mode of constructing grates, that by closing the ends greater draft is produced, and of course much harder kinds of coal can be used than in open end grates, and therefore a more fervent heat may be had. The closed ends also protect the enamel on the frame of the grate from the action of the fire. The article may be seen at the store of Messrs. Roseboom & Co., 82 Market street. 24s2t44

LEATHER, OIL, AND FINDING STORE,

No. 18 Hudson Street.

J. HOCHSTRASSER,

Will continue the above business at his old stand, and having made arrangements with manufacturers of Leather and Morocco in the cities of NEW-YORK, PHILADELPHIA, and ALBANY, and having in his employ first rate workmen, he is enabled to supply his customers with all the articles in his line on the most reasonable terms, at *Wholesale* or *Retail*, the following are included in his assortment: Oak and Hemlock Harness, Bridle, Collar, Horse, Trunk, Valise and Skirting Leather; Hog Skins, Philadelphia Russet Bridle, do. Facing Skins, do. Lining Hides, do. Top Hides, Patent Leather, Coach Roans, Neats Foot and Liver Oil, Currier's Tools, Oak Sole Leather, Hemlock do., Wax and Grain Upper Leather, do. Calf Skins, Keen's Philadelphia do., Seal and Rip Skins, Splits and Welt Leather, Cordovan, Red, Green, White and Yellow Linings, Goat and Sheep Binding Skins, White Alum Dressed Linings, Dressed and Undressed Morocco, Colored Goat and Sheep Skins, English Shoe Thread of all numbers, India Rubber and Patent Cloth, Apron Skins, Stock Binding, &c.

N. B. An assortment of SHOE MAKER'S FINDINGS will be kept on hand.

Also, *Roller Skins, Engine Hose, Band, Picker, String*, an *Patent Leather*, on hand and made to order. *Albany*, 1841.

To Builders and Contractors.

THE subscriber having purchased Caldwell and Cameron's Lock Establishment, is now prepared to execute orders on their improved plan, in all the variety of Door Locks now used in the best style of building. The utility of these locks will at once be apparent to any one who may examine them. The principal difficulties existing in almost every lock now in use, and so much complained of by builders and house owners, is almost entirely removed. The simple but substantial application of the spring greatly lessens friction, and consequently lessens and tendency to wear. There is no liability in any of its movements, to get out of order, and any number of them may be applied with perfect ease and security to doors of various thickness, without the usual alterations, trouble and expense, that generally attend the putting on of locks, as is best known to the experienced builder. Their utility has been thoroughly tested by experienced men, for the last two years, with entire satisfaction, and are considered by all who have used them, equal and in many respects superior to any other kind of lock now in the American market.

All orders addressed to the subscriber, at the Furnace, Fonda-street, will receive prompt attention,

ROBT L CUNNINGHAM.

Schenectady, Nov. 26, 1841.

Reference may be had to any of the undersigned gentlemen who have given their approving card for publication.

We, the undersigned builders, have used Caldwell and Cameron's patent door locks, and from their simple construction, cheapness and general utility, do not hesitate to recommend them to the public, as equal to any lock of American manufacture now in use.

BOARDMAN & VAN VOAST,
GEORGE McBAIN,
HENRY MORSE, *Builders in Albany*
JOSEPH HORSFALL,
JOHN KELLY,
CORNELIUS THOMPSON,
ELIAS LYON, *Builders in Schenectady.*

I have during the past year, put on a number of Caldwell and Cameron's patent mortice and knob locks, and consider them the easiest to put on, and the best working lock I have ever used or seen. 37 JOHN RAYSIDE, Albany.

From the Masonic Register.

THE SEWING GIRL.

BY F. W. COLE.

With a foot like a fawn she wendeth the street,
With a mild and a modest eye,
And the worthy are willing with smiles to greet
The beautiful girl, if they chance to meet
Or to see her passing by.
But the lip of the proud with scorn will curl,
For she is only a sewing girl.

Her mother is poor, and her brother is young,
Her father is in his grave;
With penury's grasp their souls are wrung,
And the belle's proud taunt her heart has stung,
Though her lot she does not crave.
She well may return the scornful curl,
She 's an independent sewing girl.

For the daughters of wealth, while her needle flies
That they in their pride may move,
Though to shrink from their haughty glance she tries,
They envy the power of her moist blue eyes,
But she wins them all to love;
For the callous heart of a crabbed churl
Has the one who can slight the sewing girl.

But now has a staid and a womanly grace
Come over her sylph-like form;
And the flashing of thought I am proud to trace,
In her heavenly eye and her Grecian face,
But her glance of love is warm,
And the dark brown locks still love to curl
On the beaming brow of the sewing girl.

Oh! dark is the heart that has never been blest
With the love of a guileless maid!
But rich is the rapture and calm the rest
That gladdens my spirit while on her breast
My feverish head is laid.
How thrilling the joy in my arms to furl
My bright and beautiful sewing girl!

PROFESSIONS AND TRADES.

THE MASON

The art of masonry includes the sawing and cutting of stones into the various shapes required in the multiplied purposes of building, and in placing them in a proper manner in the walls and other parts of edifices. It is divided into two branches, one of which consists in bringing the stones to the desired form and polish; and the other, in laying them in mortar or cement.

The rocks most used in building in the United States, are marble, granite, greenstone, scienite, soapstone, limestone, gypsum, and slate. These are found in a great many localities, not only on this continent, but on the other side of the Atlantic. Of these stones, there are many varieties, which are frequently designated by their sensible qualities, or by the name of the place or country whence they are obtained; as *variegated, Italian, Egyptian*, or *Stockbridge* marble and *Quincy stone.*

The stone-cutter.—Stone-cutters procure their materials from the *quarrymen*, whose business it is to *get out* the stones from the quarries, in which they lie in beds consisting either of strata piled upon each other, or of solid masses. Stones of any desirable dimensions are detached from the great mass of rock, by first drilling holes at suitable points, and then driving into them wedges with a sledge. These blocks are usually removed from the quarries, and placed on vehicles of transportation, by means of huge cranes, with which is connected suitable machinery.

The blocks of stone, received in their rough state by the stone-cutter, are divided, if required, into pieces of smaller size, by means of a toothless saw, aided by the attrition of sand and water. The other rough sides of the blocks are reduced to the proper form by means of steel *points* and *chisels* driven with a mallet. A kind of hammer with a point or chisel-like edge, is also used to effect the same object, especially in the softer kinds of stone.

For some purposes, the stones are required to be polished. This is especially the case with those employed in the ornamental parts of buildings. In the execution of this part of the work, the surface is rubbed successively with sand, freestone, pumice-stone, Scotch, crocus, and putty. When the face is a plane, the sand is applied by means of another stone, which is moved backwards and forwards upon it. In this way, two surfaces are affected at the same time.

The different kinds of stone are used not in a pulverized state, but in masses of convenient size; and the part applied to the surface to be polished is first brought to a form corresponding to it. The putty is an oxyde of tin, in form of powder. Crocus is the peroxyde of iron. The building-stone capable of receiving the highest polish is marble; and it is on this material that the stone-cutter, and the architectural carver or sculptor, exert their utmost skill; but some of the other stones which have been mentioned, possess the same quality to a considerable extent.

Carving architectural ornaments, such as pillars with their capitals, is a refined branch of this business; or rather it may be considered a branch of sculpture itself. In the execution of this kind of work, the operator is guided by patterns, formed from the well-defined rules of the science of building. Very few stone-cutters attempt the execution of work so very difficult.

From the manufacture of mantle-pieces and monuments for the dead, the stone-cutter derives a great proportion of his profits. This will be manifest even to the superficial observer who may visit a few of the many stone-cutters' yards, to be found in any of our large cities. In some of these, blocks of marble are cut into slabs by the aid of steam-power.

In districts of country, also, where valuable stone is abundant, water is extensively employed for the same purpose. This is especially the case in Berkshire county, Massachusetts, where marble of a good quality is abundant. A great proportion of the marble slabs used by the stone-cutter are obtained from such mills. Some other operations of this business are also sometimes performed by the aid of machinery.

THE STONE-MASON.

In Philadelphia, and in many other cities not only in this country but also in Europe, the stone-cutters *set their own work;* and this practice has led to the habit of applying the term stone-mason to both stone-cutters and those who lay stone in mortar and cement. In New York, however, as well as in some of the cities farther east, these two employments are kept more distinct. The stone-cutters in Philadelphia are sometimes denominated marble-masons.

But in every city, there are persons called stone-masons, whose business consists exclusively in constructing the walls and some other parts of buildings with stone; and their operations are considerably enlarged in those places where there are no marble-masons. In many cases, the bricklayer is also so far a stone-mason, as to lay the foundation-walls of the buildings which he may erect. This is especially the case in the country, when the divisions of labour are not so minute as in cities. It may be well to remark, also, that the bricklayers, in some places, perform the services of the marble-mason.

The marble-mason, in joining together several pieces in a monument, employs a kind of cement composed of about six parts of lime, one of pure sand, a little plaster, and as much water as may be necessary to form it to the proper consistency. No more of this cement is used than is required to hold the blocks or parts together; as one great object of the artist is to hide the joints as much as possible. The substance thus interposed becomes as hard as the marble itself.

The cement employed in laying marble, in common or large edifices, is somewhat different from that just described, as it consists of about three fourths of lime and one of sand. The latter substance is obtained, in an unmixed state, on the bays in every part of the world; hence it has received the appellation of *bay sand.*

When it cannot be conveniently had in a pure state, particles of the same kind can be separated in sufficient quantities from their admixture with other substances. This is effected by sifting the compound through a sieve, into a small stream of water which carries off the lighter particles that are unfit for use, whilst the sand, by its superior specific gravity, sinks to the bottom. The part which may be too coarse, remains in the sieve. This, however, except the rubbish, can be used in the corser kinds of masonry.

The mortar, used in laying bricks and common stone, has a greater proportion of sand, which is generally of an inferior quality. Besides, the materials are incorporated with less care. Lime for the purposes of building is procured chiefly by calcining limestone in a kiln, with wood, coal, or some other combustible substance. It is also obtained by burning chalk, marble, and marine shells. Water poured upon newly-burnt or *quick* lime, causes it to swell, and fall to pieces into a fine powder. In this state it is said to be *slacked*

Masonry is often required in situations under water, especially in the construction of bridges and locks of canals. Common mortar resists the action of the water very well, when it has become perfectly dry; yet, if it is immersed before it has had time to harden, it dissolves, and crumbles away.

The ancient Romans, who practised building in the water to a great extent, discovered a material, which, when incorporated with lime, either with or without sand, possessed the property of hardening in a few minutes even under water. This was a kind of earth found at Puteoli, to which was given the name of *pulvis puteolanus*, and which is the same now called *puzzolana.*

A substance denominated *tarras, terras*, or *tras*, found near Andernach, in the vicinity of the Rhine, possesses the same quality with puzzolana. It is this material which has been principally employed by the Dutch, whose aquatic structures are superior to those of any other nation in Europe. Various other substances, such as baked clay and calcined green stone, reduced to powder, affords a tolerable material for water cements.

In the construction of buildings with marble and other costly stones, the walls are not composed of these materials in their entire thickness; but, for the sake of cheapness, they are formed on the inside with bricks, commonly of a poor quality, so that in reality they can be considered only brick walls faced with stone. These two kinds of materials have no other connexion than what is produced by the mortar which may have been interposed, and the occasional use of clamps of iron. Such walls are said to be liable to become convex outwardly from the difference in the shrinking of the cement employed in laying the two walls.

The principal tools employed in cutting and laying stone are the saw, various kinds of steel points, chisels, and hammers, the mallet, the square, the compasses, the level, the plumb-rule, the trowel, and the hod; to which may be added, the spade and the hoe. The last three instruments, however, are handled almost exclusively by labourers.

Besides these, contrivances are required to raise heavy materials to the various positions which they are to occupy. These consist, for the most part, of one or two shafts commonly the mast of an old vessel, to which are attached tackle extending in various directions, and also those by which the blocks are to be raised. The rope belonging to the hoisting tackle is pulled by a machine worked with a crank.

Masonry is one of the primitive arts, and was carried to great perfection in the ancient times. The pyramids of Egypt are supposee to have stood about three thousand years, and they will probably remain for centuries to come, monuments as well of the folly, as of the power and industry of man. The temples and other magnificent structures of Greece and Rome, exhibit wonderful skill in masonry, and leave but little of anything new to be achieved in modern times.

ALBANY, SATURDAY, OCT. 1, 1842.

QUERIES.

An English mechanic inquires how to blue small portions of iron and steel: he now does it by means of a hot bar, but fails to get a good blue. Also, how to preserve them from rusting, as oil changes the color.

Another inquires what is the best wax for moulding, such as likenesses in miniature; and also the best way of smoothing it after the likeness is formed. Another, how to make paper the best pink color; also yellow and emerald green. Likewise the best copying ink. Another inquires what pressure tin, used as a boiler, will sustain, gradually and suddenly applied. Also, the best mode of staining black. Another, how to bronze soft soddered articles, made of sheet copper, a bronze color, like soft soddered powder flasks. It is believed that they are dipped in some solution.

Questions like these, we perceive, are frequently asked in foreign mechanic journals, and being answered through the same means, are productive of much good in the arts. We cannot too highly applaud this mode of obtaining valuable information, nor can we recommend it too strongly to the mechanics of our own country. Perhaps some of our ingenious mechanics can answer the above queries; if so, we shall publish with pleasure their answers, and also any short articles in the way of enquiry and answer. We hope, indeed, to hear from our mechanic friends on all subjects.

FAIR OF THE ERIE COUNTY MECHANIC ASSOCIATION.

The Erie County Mechanic Association will hold their first annual fair on the 5th of October inst., at Buffalo. The Rochester association have determined to join with them, and exhibit their specimens of manufactures, which from the enviable reputation of the Rochester mechanics, will undoubtedly be excellent and rare. The Buffalo *Literary Messenger* says that from the lively interest which the artisans of that city manifest in relation to the exhibition, and the extensive preparations which are being made, there will doubtless be a rich display of talent and skill.

RAIL ROAD ALARM.

It is said that a fresh achievement by the infant science of electro-magnetism has lately been effected, by which a signal of alarm may be given to a rail way train at a sufficient distance to avoid danger, when occurring on the track.

The wires through which the mysterious power is communicated being laid down, a small galvanic battery is placed on the engine, in connection with an electro-magnet, some clock work and a *pilot* locomotive in advance of the train, through which the communications of the wires with the battery are made. When in motion the connection is broken by the application of Watts's governor. Any obstacle stopping the pilot, the arms of the governor fall, and a hand points to "danger" on the dial. The apparatus even puts down the break and turns off the steam, if the engineer should be inattentive. The inventor shows that all this can be done, though the invention has not yet been brought into use.

MECHANICAL IMPROVEMENTS, ETC.

ARCHIMEDEAN SCREW.

A large steamer of 50 guns on the Archimedean screw principle, was lately launched at Belfast, Ireland. The screw is 12 feet in diameter, and 7 feet in length, with 14 feet pitch. The gear is a cog wheel 20 feet in diameter, working into a small wheel of 5 feet diameter, upon the axis of which is the shaft of the screw. She spreads also 6,400 yards of canvass. The prospects of her speed are highly spoken of.

QUICK WORK.

A beautiful dress coat was recently made in Leeds, England, from wool in the raw state, and unassorted, in the short space of 19 hours! From the raw state it passed through all the processes into superfine cloth, in 12 hours and 15 minutes. It was then finished by the patent process in 2 hours and 58 minutes, and then made into the dress coat in 3 hours and 55 minutes. In the ordinary way, cloth is often two months in passing through the various processes of finishing.

COMPRESSING PEAT.

As the article of peat is very abundant in this conntry, and may be ere long very extensively used, we shall give, in a subsequent number, a description of a new machine for compressing it, as invented and applied in England.

STEEL.

The fact that the tool used in slitting steel pens is an extremely fine edged chisel, finer than any razor, but much harder, as it does not require to receive an edge during the whole of the day, may be known to our readers; but the process by which steel is thus prepared for use may be desirable with many mechanics. In another number some facts will be given on this subject.

A NEW MACHINE FOR SPINNING AND TWISTING SILK,

Has lately been invented by a German, who is now in St. Petersburgh. It is said that by this new machine silk thread may be manufactured by a single operation, and without the application of spindles. More anon.

POWER ON RAIL WAYS.

On well-constructed rail ways, a ton is drawn by a force of seven pounds and a half, whether the force is derived from steam, or from a weight acting over a pulley. A force therefore of twenty-five pounds would draw a stage coach with its baggage, passengers, &c., which usually weighs about three tons.

HOLLOW FLAME.

It is said that the flame arising from the combustion of spirits of wine is hollow. In proof of this, put spirits of wine in a tea spoon or similar vessel, and when lighted and allowed to burn some seconds, quickly place in the middle of the flame a dry congreve match, which will not ignite, however long it may be kept in that position. Dr. Murray says that all flame is hollow, but we have seen no way of testing it.

THE FARMERS AND MECHANICS FAIR.

The fair, of which almost every farmer and mechanic in the state has been apprised, through the medium of the public prints, commenced at the Bull's Head tavern, about a mile north of this city, on Tuesday last. The attendance has exceeded our most sanguine expectations, surpassing any thing of the kind that has ever come off in this state. The grounds were admirably adapted for the purpose, and the location easy of access from any portion of the state, one grand desideratum which should never be overlooked. It would be impossible to give our reader any adequate idea of the scene, by a description, which, to be in any manner just, would far exceed our limits. The great congregation of persons that thronged the beautiful MacAdamised road that leads past the grounds, seemed exhilerated with the anticipation —nor were they disappointed on their arrival. We visited the ground and were right well pleased, not only with the novelty of the exhibition, but also that the mechanics had so promptly accepted the invitation of the agricultural society, and turned out in the strength they did. In fact, so closely are the farmer and mechanic allied, and such is their dependance one upon the other that, in our opinion, there can be no strictly agricultural fair; for, if the implements of the agriculturist are left out, our fairs would present a rather meagre spectacle. However, the mechanics and farmers turned out in their strength, and the whole affair went off with the utmost eclat. We can only enumerate a portion of the many agricultural and mechanical instruments and products, nor can we, till their official publication, give the list of prizes, or the names of the successful competitors.

Among the plows, of which there were some twenty or twenty-five specimens, we noticed the *Scotch wooden plow*, manufactured at Galway, in Saratoga county, and exhibited by Chas. Buel, of this city; the *iron double mould board*, by the same, John Randerson's patent, of Castleton, in this state; the *Freighters patent*, exhibited by Francis Roch; the *double mould board swing beam*, by Banely & Moor, Utica; *sub soil*, *side hill*, *common* and *swivel* plows, by Ruggles, Nourse & Mason, Boston, exhibited by Pruyn, Wilson, & Vosburgh, of this city; the *East Lothian iron* plow, by C. M. Bement, of this city; the *grass-steel* plow, by — Avery, Oxford, N. Y.; the *inclined land side and sward* plow, by — Chase, of Amsterdam; the *iron sword* plow, by — Mulany, of Utica; the *improved Livingston*, by E. Elmer, of Delta, Oneida county; the *cast* and *wrought iron shear*, by J. S. Tefft, of Williamsville, Erie county; R. Miner's patent, of Peekskill, two kinds; H. Delano's patent, of Mottsville, Onondaga county, being an improvement on the premium plow of the last annual fair; all these, with several others, the names of which we could not ascertain.

Among the various hand mills we observed some very ingenious and apparently excellent instruments. There was Murray's *self sharpening hand mill* and *corn crusher*; G. E. Waring's *cast iron self regulating corn sheller*, a beautiful instrument; with several others, not named, but which worked admirably. There were several varieties of harrows—M. Adam's *iron movable* harrow; C. Proctor's *double accommodation* harrow, an excellent instrument; and D. Coley's im-

the roof and plaister of the houses. Again, the atmosphere of a smoky town will give some impregnation to rain as it passes through. Hippocrates states that rain water should always be boiled and strained when collected near the large towns; a fact now well known to chemists.

Why do metals rust in the exterior of buildings?

Because of the oxydating powers of water; which, by supplying oxygen in a dissolved or condensed state, enables the metals to form new combinations. Thus, metalic substances, such as iron, copper, bronze, brass, tin, and lead, whether they exist in stones, or are used for support or connexion in buildings, are liable to be corroded by water, holding in solution the principles of the atmosphere.

Why does wood exposed to the air so soon decay?

Because, not only the rain, but even the vapour in the air, attracted by the wood, gradually reacts upon its fibres, and assists decomposition, or enables its elements to take new arrangements. Hence it is, that none of the roofs of ancient buildings, more than one thousand years old, remain, unless it be such as are constructed of stone; as those of the Pantheon at Rome, and the tomb of Theodric at Ravenna, the cupola of which is composed of a single block of marble. The pictures of the Greek masters, which were painted on the wood of the *abies*, or pine of the Mediterranean, likewise, as we are informed by Pliny, owed their destruction, not to a change in the colors, nor to the alteration of the calcareous ground on which they were painted, but to the decay of the tablets of wood on which the intonaco or stucco was laid. Amongst the substances employed in building, wood, iron, tin, and lead, are most liable to decay from the operation of water, than marble, when exposed to its influence in the fluid form. Brass, copper, granite, sienite, and porphyry, are more durable.

Why is marble used for sculpture and architecture in preference to harder substances?

Because their durability is not in proportion to their hardness; and marble, though much softer than granite, resists longer the attacks of air and moisture.

Why does seawater soon grow offensive by keeping?

Because of the decomposition of the animal and vegetable matters which it contains in suspension; these, like all organic bodies, being peculiarly liable to change, and the salt in the water not being sufficient to preserve them from decay.

Why is the sea usually of a green color?

Because, probably, of vegetable matter, and perhaps, partially, of two elementary principles, iodine and brome, which it certainly contains, though these are possibly the results of decayed marine vegetables. These give a yellow tint when dissolved in minute portions in water, and this mixed with the blue of the pure water would occasion seagreen.

Why is the Mediterranean of superior saltness to other seas?

Because the Mediterranean expends, by evaporation, three times more water than it receives; the fresh water being so carried off from the surface.

Why is the Dead Sea so called?

Because no living creature is to be found in it.

Why is it said, that "nothing sinks in the Dead Sea"?

Because of its extreme saltness. Mr. Madden, a recent traveller, bathed in this sea: he could lie, like a log of wood, on the surface, without stirring hand or foot, as long as he chose; but with much exertion he could just dive sufficiently deep to cover all his body, when he was again thrown on the surface, in spite of his endeavors to descend lower. On coming out of the water, Mr. Madden found his body coated with it, and likewise with an incrustation of salt, about the thickness of a sixpence.

Why does coal, subjected in close vessels to a red heat, produce gas?

Because the carbon and bitumen, of which the coal consists, thus become volatilized; and hydrogen, holding carbon in solution, is the result: this gas, combining with the oxygen of the atmosphere, produces combustion and flame.

Why was gas adopted in cotton mills soon after its invention.

Because of the peculiar softness, clearness, and unvarying intensity of its light. Its being free from the inconvenience and danger resulting from the sparks and frequent snuffing of candles, is a circumstance of material importance, tending to diminish the hazard of fire, and lessening the high insurance premium on cotton mills.

Why is the flame of a candle of various colors?

Because of the different stages of combustion in it. Thus, at the bottom part, where the inflammable gases are given off in the smallest quantity, and where they are most intimately mixed with the air, the combustion is at once complete, and the light is blue and faint; the centre part, where the particles of charcoal, owing to a less admixture of oxygen, are thrown off in a solid state, and become incandesent before they are finally burnt, is white and highly brilliant; and the upper, where the charcoal is in still greater quantity, and much of it finally escapes combustion, is red and dull, as is seen when a candle requires snuffing.

IRON AND STEEL.

The most precious of all the metals, if we take *actual* value for the criterion of preciousness, is found in most countries. The most considerable *quantities* of iron, however, are found in the United States; and iron of the finest and most esteemed *quality* is found in Sweden. When we give the least reflection to the almost innumerable uses, commercial and mechanical, to which iron alone is adequate, it is impossible not to perceive how indispensably necessary this valuable metal is to our comfort and civilization. Without iron the arts, even that of agriculture, must have dwindled on in perpetual infancy, and nine tenths of the comforts and conveniences which we now enjoy would have been totally unknown to us. To become sensible of the value of iron, our young readers have only to turn their attention to the various articles of furniture in the room in which they are sitting. They will readily observe that in the minor elegancies and comforts of life, as well as in the coarser and ruder, but still more valuable implements of our artisans, iron is an all important ingredient.

Sweden produces, as has been said, the finest kind of iron, and it has also a very great abundance of it, as may be judged from the fact that within two iron mines of Sweden there are upwards of twenty six thousand persons constantly employed. The two principal mines of Sweden are those of Danamora and Tabern. The former is so extensive that it alone employs thirteen thousand men, and the latter is so seemingly inexhaustible that though it has been worked more than three centuries, with scarcely the pause of a single week, it still continues to yield as abundantly as ever, and with as little trouble to the miners. This mine is, in fact, a mountain, the entire of which, except the outer crust or stratum, is composed of rich iron ore.

Norway, Russia and America have their iron mines also; especially the last named, which excels all the rest of the world in the abundance of its iron. Independent of the very important uses of cast and wrought iron, steel also, an exceedingly useful and important article, is iron, prepared by a peculiar process.

Being completely surrounded by charcoal, and subjected to an exceedingly powerful heat, iron is impregnated with a considerable portion of carbon. It is then fused by a still more powerful heat, and cast in the shape of small bars.

One exceedingly valuable property of steel is, that it admits of being made harder or softer, according to the use for which it is designed. This is effected by heating it to various degrees of heat, and cooling it more or less suddenly, by plunging it, more or less gradually, into cold water.

Upon the degree of skill with which steel is tempered, greatly depends the value and efficiency of the weapons or instruments which are made of it. It was on account of their great skill in this respect that the sword cutlers of Damascus and Toledo were antiently so famous for the excellence of their weapons. Damascus blades are not now in so much request as they formerly were, but Spanish weapons are still held in great esteem, and still produce considerable prices.

It is singular that this valuable art, of tempering steel, has rarely been possessed in perfection by any but half civilized people. The Japanese of the present day, who are in almost every thing else so much behind us, possess this art in the very highest perfection. Their swords and other weapons, and their steel work in general, is exceedingly well tempered.

They are perfectly well aware of their superiority in this respect, and not only refuse to disclose their secrets, but even manifest some unwillingness to sell edged tools or weapons to foreigners, lest they should discover it. Indeed, it is said that no foreigner can buy, in Japan, an article of steel tempered so perfectly as those which are in use among the natives themselves.

Iron, the most important of all the metals, is the most abundantly distributed of them all, and is by far the least attractive and elegant in appearance In color it is of a greyish white, nearly approaching to blue, is exceedingly hard, and is only fusible in a most intense and continued heat.

In observing the extensive usefulness of iron and its destitution, in its native state, of the dazzling and beautiful brightness of some of the other metals, we cannot help observing that it may teach us that it is not always the most beautiful and attractive things that are the most extensively or the most importantly useful. Iron is, if we may so speak, in its personal appearance, infinitely inferior to all the other metals, but it is scarcely going too far to affirm that the condition of mankind would become more tolerable did they possess *iron* without *any* of the other metals, than if they possessed all of them and were destitute of iron.

Let our young readers reflect that they also had better possess the solid qualities of sense, honesty and virtue, without any portion of the more dazzling accomplishments, than possess these latter in their greatest perfection of extent and brilliancy, at the expense of any one of the former.

The adventurous and accomplished traveller, Dr. Clarke, describes an iron mine which he visited in Sweden, as being one of the most impressively grand scenes he had ever witnessed; and we need scarcely tell our readers that there were few important parts of the world which he had not more or less familiarly made himself acquainted with. It is from the journal of that adventurous traveller that we abridge the following description.

Over a vast chasm in the earth a sort of platform is erected, furnished with the machinery necessary for raising the ore. Huge buckets were perpetually ascending and descending, the chains to which they were suspended making a melancholy rattling, echoed and re-echoed by the sides of the gulf. Looking down from the verge of this platform, the giddy spectator could see, at upwards of seventy fathoms deep, a multitude of miners flitting about in a fitful and dim light, and looking, from the great distance, rather like the pigmies of ancient fable than full sized and athletic men. Mingled with the melancholy clanking of the bucket-chains, there arose from this yawning abyss a motly confusion of sounds, of creaking wheels, groaning pumps, clash of hammers, and occasionally a tremendous explosion of gunpowder in blasting the rocks.

In the midst of this distracting uproar, Dr. Clarke, attended by his interpreter and two of the miners, made his descent, by means of ladders lashed together, and extending without any resting place from the mouth of the pit down the whole of the seventy fathoms deep. As if to make the descent more perilous than it needed to be, the ladders were in many places rotten, and in some broken, and the staves were so covered with mud and ice, that the hands of the traveller were completely benumbed; and he candidly tells us he had not got far down ere he heartily wished that he had been contented to remain on *terra firma*. Happening to mention to one of his guides his surprise at the neglected condition of the ladders, the man warned him not to fix his thoughts upon that subject, and told him that a woman belonging to the mine had fallen from the ladder at the very moment when she was complaining of its insecurity. On hearing this comfortable intelligence, the interpreter, simply enough, inquired what became of her. "Became of her?" replied the miner, at the same time taking one of his hands from the ladder, and slapping it smartly on his thigh, "she became a pancake!"

The Doctor was more fortunate or more careful than the poor woman had been, and after much toil and inconvenience arrived safely in the mine. Here the Doctor was astonished at finding "thick-ribbed ice," it being generally understood that the lower you descend into the earth the warmer do you find the temperature. But in this case the great extent of the opening allows the atmospheric air to pour down in such great volumes from above, that the temperature is nearly, if not exactly the same as upon the surface of the earth. Passing along several vaulted passages, the traveller was at length ushered into the principal chamber of the mine, where amid ice, steam, rushing waters, and a noise all but stunning to ears not accustomed to it, about fifty miners were busily employed in their various departments of labor. Women, haggared and begrimed, with clotted hair and inflamed eyes, holding in their hands lighted torches of pine wood, "grinned horribly" around them, and yelled out unintelligible words at the very top of their voices. Suddenly the din of hammers ceased, the guides hurried the traveller and his interpreter from the spot, and they had just commenced their ascent towards upper earth when a tremendous explosion seemed to shake

all around, and its thunder died away in reverberations more and more faintly heard, until all was again silent.

PLATE-GLASS TINGED BY THE SUN

Most of our readers must have noticed the rich purple tinge which is to be seen on some of the panes of plate-glass in the windows of the opulent; and no doubt many who have seen it have felt at some loss how to account for the production of it.

The effect of the plates of glass thus coloured, tinging the white blinds or curtains behind them, is exceedingly fine, especially on a sunny day. Many persons have even given orders for glass of that particular colour when having broken panes of common crown glass replaced by new ones; and glaziers being perfectly ignorant of the cause of their employers' mistake, could only reply, that one pane of stained glass would look very odd.

Some plates of glass which were perfectly colourless when first put into a window sash, but which subsequently became tinged with the beautiful purple hue of which we have spoken, were pointed out to the notice of Mr. Faraday. That gentlemen at once, and justly attributed the change in the colour of the plates to their exposure to the solar rays.

By way of illustrating his opinion, he obtained two pieces of different plates of glass. Each of these being broken in two, one half of each was wrapped up in thick paper, and put in a dark drawer, the other half of each being fully and constantly exposed to the sun.

After the seclusion of the one portion of glass, and exposure of the other, had lasted for about nine months, namely, from January to September, an examination took place. The result was, that the pieces of glass which had been exposed to the air and sun were deeply tinged with the purple hue of which we have spoken, while the pieces which had been kept in a dark place were as white as on the day when they were first made. This experiment is perfectly conclusive as to the *cause* of the violet hue of plates of glass placed in certain situations: but the *process* by which that hue is communicated seems to be by no means so clear. If any of our scientific correspondents think fit to offer any explanation of it, we shall be most happy to give insertion to his paper.

Might not the knowledge of the *cause*, even, of this hue, be turned to advantage by the makers of ornamental glass work.

ANNESLEY'S SHIP BUILDING.

The editor of the *Buffalo American*, who is competent to speak on this subject, from long experience in the command of vessels, thus notices the series of articles which appeared in this paper on the Annesley system of ship building:

We observe that the New York State Mechanic is noticing favorably this system of ship building, and we must say that it has always appeared to us so great an improvement upon the old plan that we have wondered it has never been more fully tried. We read a work of Mr. Annesley's upon the subject some years ago, and we have since seen vessels constructed on his plan, but the most of them were not well modeled, a fault that, while it does not disprove the value of the invention, still tends to keep the system in disrepute.

The Toronto steamboat, on lake Ontario, was, we believe, thus built, but her model was so bad that it was found necessary to shift her end for end, and she ran stern foremost, with the cabin chock forward. Her engine, too, was a miserable one; but, although she always was a laughing stock, still we always considered her a proof of the excellence of the plan; for we were satisfied that had she been built after the usual fashion, with such a model as she had, she would have been instantly condemned as an unsafe sea boat.

The U. S. Schooner Experiment was also built upon this plan, and she too was a failure; but then she was one of Com. Rogers' pets, her deck was not properly secured to carry guns, her fastenings were imprudent deviations from the true plan, and there were many other errors in her construction that rendered her highly objectionable as a man of war. She was very unpopular, among the officers, and was even considered an unsafe sea boat, yet upon one occasion, when caught in a tremendous gale, her officers were obliged to confess that her extreme buoyancy enabled her to ride out a gale that it was thought would have destroyed her, on account of her insecure fastenings and the many other errors in her construction.

We hope the plan will be fully and fairly tested, and that two vessels will be built, one after the usual fashion, and one upon the Annesley principle, with as great similarity of model as possible. The trial of these, in the same trade, would fully settle the question, at once and forever.

LARGE BELLS.

Bells, says Weever, were formerly baptised, anointed, exorcised, and blessed by the bishop, and were then imagined to have the power of calming storms, causing fair weather, re-creating the dead, and driving the devils out of the air. The great bells of Lincoln and Oxford were baptised by the name of Thomas, in honour of Thomas á Becket, Archbishop of Canterbury; hence they are called the great or mighty Tom. Croyland Abbey had the first ring of bells in England; they were six in number, and put up in Edgar's reign. The Jews made use of trumpets to assemble the people to worship; and sounding boards are used for the same purpose at the present day by the monks in Egypt, and also in Greece, where they strike upon them with a mallet. The following are the largest bells extant:

One in Philadelphia, in America, with this inscription—"Proclaim liberty throughout all the land to the inhabitants thereof "weighing"	2,080
The great bell of St. Paul's London	9,408
Great Tom of Lincoln, which holds four hundred and twenty-four gallons, ale measure	9,894
One in the cathedral at Antwerp, founded in 1440	16 000
Christ Church bell, Oxford	17,920
The bell of St. Ambrose, in Milan, seven feet in diameter	30,000
One at Rouen, in Normandy, called George D'Amboise, thirteen feet high	40,000
The great bell at Pekin, in China	120,000
The great bell at Moscow, in Russia, which measures nineteen feet high, seventy feet in circumference, and two feet in thickness; and which requires one hundred men to raise it.	366,000

GLASS.

Pliny gives the following account of the discovery of the art of making glass:—

"Some merchants conveying nitre, stopped to refresh themselves near a river which issues from Mount Carmel. Being unable to find stones upon which to rest their kettles, they made use of some pieces of nitre for that purpose; the fire gradualy melted the nitre, which mingled with the sand; this mixture produced a transparent matter, which was no other than glass."

By some it is said that glass was invented in England by a monk, named Benalt, in the year 894; and that it was used in private houses in 1180. Lord Kames is of opinion that the art of making glass was imported from France into England in the year 674, for the use of monasteries; and, that glass windows in private houses were very uncommon even in the twelfth century.

TAXES IN ENGLAND.

"In England, fine, large houses are built with half the windows false, to save the tax on light. Families are also taxed for every servant they keep, and if the servant wear a powdered wig the tax is a guinea extra. Many of the family carriages, large enough to contain four or six persons, are perched upon wheels hardly large enough for a child's wagon, on account of wheels over a certain size being heavily taxed."

That's right—tax the big houses, and the servants, and the servants' powdered wigs, and all ostentatious great wheels. Then will the big houses with false windows, and the large carriage bodies with small wheels, point out the *leetle* minds of their owners, who in their endeavors to *swell*, strain at a camel and swallow a gnat.

THE MANUFACTURE OF SCREWS

Has become an important and profitable branch of American industry. The N. E. screw company at Providence have a capital of $150,000 invested in the business. A patent for the machinery used has been taken out in England. Two thousand gross of screws are finished daily, giving employment to 50 men, 200 females, and 50 boys, whose daily wages amount to over $200. Notwithstanding the immense quantity of screws manufactured at this concern daily, yet $139,000 worth are imported into this country every year. The establishment here use 600 tons of American refined iron rod a year, worth $130 a ton; 750 tons Pennsylvania coal; 1000 gallons sperm oil and $3000 worth of wrapping paper! All the materials used are American, with the exception of 300 carboys of sulphuric acid.

The tariff of 1828, when there were no establishments in this country, placed a duty of 40 per cent. on the article. The agent says they can sustain themselves with a protection of 30 per cent.

Men's wages here, $1 a day. Same business in England, wages 25 cents a day. Girls earn from $3 to $4 a week. In England, 80 cents.

WISCONSIN COPPER.

The Mineral Point Free Press says that about 20,000 pounds of copper have been shipped to market, which has been sold to great advantage. This ore is valuable, containing from 25 to 40 per cent. of pure copper. The average copper ore of Cornwall, England, yields but 9 per cent.

LARGE FRUIT.

We have been presented an apple, weighing twenty ounces, and measuring fourteen inches in circumference, from the garden of Mr. John M. Laws, of this city.

Since the above Isaac E. Jones has left at our office an apple from his garden, weighing twenty-five ounces, and measuring fifteen inches in circumference.

We thought this could not be *beat*, until our friend James Hennicutt brought in a *beet*, which *beat* it upwards of considerable. The beet measured upwards of two feet in circumference, and weighed 10½ lbs.—*Richmond (Ia.) Palladium.*

GUNPOWDER OF OLDEN TIME.

The following quaint description of the ingredients employed in making gunpowder, is found in Farmer's "History of Waltham Abbey."

"1. Brimstone, whose office is to catch fire and flame of a sudden, and convey it to the other two ingredients.

"2. Charcoal pulverized, which continueth the fire and quencheth the flame, which otherwise would consume the strength thereof.

"3. Salt-peter, which causeth a windy exhalation, and driveth forth the bullet. This gunpowder is the emblem of political revenge, for it biteth first and barketh afterwards, the bullet being always at the mark before the report is head; so that it maketh a noise not by way of warning but of triumph."

LARD OIL.

The Cincinnati Republican says it learns that all three of the lard oil manufactories in that city are full of business, and have as much as they can do, to answer orders. They manufacture now, in the aggregate, upwards of 1,000 gallons per day, and give employment to some thirty hands, besides the indirect benefit derived by the cooper, tinman, &c.

The Republican also notices a shipment of lard oil for New Orleans intended for the Mexican market.

GOT, OR NOT GOT.

"I am constrained to call on you this morning," says Tap, "for I owe a hundred dollars at the bank, which I have got to pay to-day." "You have *got* to pay," replied Sip, "the more lucky for you then; for I owe ten dollars, and havn't *got* the first dollar towards it."

ANTIQUE.

At Bethlehem in Pennsylvania, there is a fire engine built in London during the reign of William and Mary, A. D. 1698.

"This engine was shipped from London with the colonists in 1742, and yet exists, just as it was received, with the exception of some common blue paint which has been put on lately. It is about 8 feet long, stands on low wheels, with strong wooden axles, and is constructed much on the same plan as the New York fire engines of the present day; the work yet stands firm, and is 144 years old, no doubt the oldest thing of the kind in the United States.

MISCELLANY.

I 'VE BEEN THINKING.

I 've been thinking, I 've been thinking,
What a curious world we 're in,
Men are sleeping, eating, drinking,
Just as they have always been—
Beaux are strutting, dandies quizzing,
Misses toiling night and day,
Boys are sporting, girls are frizzing,
Grandma's fidgeting away.

Tom is crying, Mary singing,
Jack is laughing merrily,
Dust is flying, tea bells ringing,
These have music sure for me;
Peasants toiling, rich men riding,
Staring with a lordly phiz,
Rogues through every crowd are gliding,
Zounds how queer a world it is!

Marrying, some in marriage given,
Others like the world of old,
All but me are feasting, living—
Would that wives were to be sold!
Others have their dears in plenty,
And their bosoms heave with love,
I 've had chances, nineteen, twenty—
But I dare not one improve.

Brokers shaving, sheriffs dunning,
Politicians pull your sleeve,
Printers scolding, wits are punning,
Jailbirds begging for reprieve;
Preachers warning, idiots ranting,
Bacchus, too, hath devotees,
Yonder wretch, your wife 's gallanting,
What a deuced fool is he!

Lawyers spouting, clients list'ning,
Doctors prating of their skill,
Patients groaning, school boys whistling,
Striving all old time to kill.
Pedagogues of science telling,
Milliners of pretty things—
Lovers stroll, with bosoms swelling,
List'ning while the night bird sings.

Clouds are lowering, tempests howling,
Friends suspecting, foes are glad,
Children screaming, mistress scowling,
Merry bosoms now are sad;
Presto! they are gone forever,
All is gay as it has been,
Sunbeams smile, the girls—oh, never!
What a curious world we 're in!

VENTRILOQUIAL GALLANTRY.

Brodeau, a learned critic of the sixteenth century, gives a curious account of the enterprising schemes practised by a ventriloquist who was valet de chambre to Francis the first. The fellow, whose name was Louis Brabant, had fallen in love with a young, handsome and rich heiress, but was rejected by the parents as an unsuitable match for their daughter, on account of the lowness of his circumstances. The young lady's father dying, he paid a visit to the widow, who was totally ignorant of his singular talent. Suddenly, on his first appearance, in open day, in her own house, and in the presence of several persons who were with her, she heard herself accosted in a voice resembling that of her dead husband, and which seemed to proceed from above, exclaiming, "give my daughter in marriage to Louis Brabant, he is a man of great fortune and of an excellent character. I now endure the inexpressible torments of purgatory for having refused her to him. If you obey this admonition I shall soon be delivered from this place of torment. You will at the same time provide a worthy husband for your daughter, and procure everlasting repose to the soul of your poor husband."

The widow could not for a moment resist this dread summons, which had not the most distant appearance of proceeding from Louis Brabant, whose countenance exhibited no visible change, and whose lips were close and motionless during the delivery of it. Accordingly, she consented immediately to receive him for her son-in-law. Louis's finances, however, were in a very low situation, and the formalities attending the marriage contract rendered necessary for him to exhibit some show of riches, and not to give the ghost the lie direct. He accordingly went to work upon a fresh subject, one Cornu, an old and rich banker at Lyons, who had accumulated immense wealth by usury and extortion, and was known to be haunted by remorse of conscience on account of the manner in which he had acquired it.

Having contracted an intimate acquaintance with this man, he one day, while they were sitting together in the usurer's little back parlor, artfully turned the conversation on religious subjects, on demons and spectres, the pains of purgatory and the torments of hell. During an interval of silence between them, a voice was heard, which, to the astonished banker, seemed to be that of a deceased father, complaining, as in the former case, of his dreadful situation in purgatory, and calling upon him to deliver him instantly thence, by putting into the hands of Louis Brabant, then with him, a large sum, for the redemption of Christians then in slavery with the Turks; threatened him at the same time with eternal punishment if he did not take this method to expiate likewise his own sins. Louis Brabant affected a due degree of astonishment on the occasion, and further promoted the deception by acknowledging his having devoted himself to the prosecution of the charitable design imputed to him by the ghost. An old usurer is naturally suspicious. Accordingly, the wary banker made a second appointment with the ghost's delegate for the next day; and to render any design upon him utterly abortive, took him into the open fields, where not a house or a tree, or even a bush, or a pit, was in sight, capable of screening any supposed confederate. This extraordinary caution excited the ventriloquist to exert all the powers of his art. Wherever the banker conducted him, at every step his ears were saluted on all sides with the complaints and groans not only of his father, but of his deceased relations, imploring him in the name of every saint in the calendar, to have mercy on his own soul and theirs, by effectually seconding with his purse the intentions of his worthy companions. Cornu could no longer resist what he conceived to be the voice from heaven, and paid him down ten thousand crowns: with which the *honest* ventriloquist returned to Paris, and married his mistress.

ANECDOTE OF DR. GOLDSMITH.

Dr. Goldsmith used to frequent a tavern in London, where a weekly club was held by the literati of the day. One evening, on being there, he had a guinea and a shilling in his pocket, and, being rather an absent character, he gave the coachman the guinea instead of the shilling. The doctor repaired to the club room, the coachman drove away. Being called upon for a subscription, the doctor threw the shilling upon the table, which he had imagined was a guinea; he soon perceived his mistake, and related the circumstance to the club. The company laughed, and the doctor, in a violent rage, rushed out of the room to seek the coachman, but in vain. In the following week, when the club was full and the doctor enjoying his bottle, the waiter brought word that a hackney coachman wanted to speak with him. After receiving some sarcastic advice from his friends, to be cautious of his commerce with coachmen, he went down stairs, and was astonished to find it was the same individual who had drove him the preceding week. I have brought your guinea back, (said the coachman,) I know your honor made a mistake: now some scoundrels would have pocketed the money, and have said nothing at all about the matter, but that 's not my way, your honor, I thank God if so be I 'm poor I 'm honest—it wears well, as a body may say. My dear friend, exclaimed the doctor, I admire your principle, you will please wait here a few minutes. Upon which the doctor marched up stairs, and told the story with all those rapturous blandishments which a poetic mind, on such an occasion, will beget in a good heart. He finally urged them to a subscription, as a proper reward for singular honesty in the lower ranks of life. It was generously complied with, to the amount of fifty shillings. The good but credulous man ran off with the collection to the descendant of Phæton, poured it into his hat, and, after affectionately embracing and blessing him, was returning up stairs to his convivial friends, with that enviable and sublime satisfaction which every man feels after the performance of a good deed—he entered the room with triumph, his friends welcomed him with laughter—alas, it was at the doctor's expense! The guinea which the rascal had pretended to return was a *counterfeit!!!*

DEATH OF ARCHIMEDES.

During the sacking of Arcadina, Archimedes was shut up in his closet, and so intent on the demonstration of a geometrical problem that neither the tumult and noise of the soldiers nor the cries and lamentations of the people could divert his attention. He was very deliberately drawing his lines and figures, when a soldier entered his apartment, and clapped a sword to his throat. "Hold, friend," said Archimedes, "for one moment, and my demonstration will be finished." The soldier, astonished at the unconcern and intrepidity of the philosopher in such imminent danger, resolved to carry him to the proconsul. But Archimedes unfortunately taking with him a small box of mathematical and astronomical instruments, the soldier supposing it contained silver and gold, and not being able to resist the force of temptation, killed him on the spot. His death was much lamented by Marcellus, who caused his funeral to be performed with the greatest pomp and solemnity, and ordered a monument to be erected to his memory, among those illustrious men, who had distinguished themselves in Syracuse.

The passion of this philosopher for mathematical knowledge was so strong that he devoted himself entirely to the pleasures of study. This gave occasion to the report that he was so charmed with the soothing songs of a domestic tyrant that he neglected the common concerns and occupations of life. Every other object he despised, and that he might not interrupt his pursuits, he frequently denied himself the necessaries of life. Hiero, king of Syracuse, prevailed by entreaties on the speculative geometrician to descend to mechanics—and Archimedes constructed those wonderful machines for the defence of cities, the effects of which retarded, and might, perhaps, have completely impeded the taking of Syracuse. He is also said to have been the inventor of a sphere of glass, on which the periodical and synodical motions of the stars and planets were represented.

ANECDOTE OF PHILIP OF MACEDON.

The wisest persons of the community saw the prudence of accepting the peace offered by Philip; accordingly ambassadors were sent to treat with the king of Macedon, upon the terms he proposed. In the number of these ministers was Demochares, an irreconcilable enemy of Philip, and a strenuous promoter of the war. He acquitted himself on this occasion with that ridiculous petulence which naturally flowed from his character. At their audience of leave, Philip, with less sincerity than politeness, lavished his praises upon the ambassadors, and asked if there were any thing more in which he could serve their republic? "Yes," replied Demochares, "hang thyself." The just indignation of all present broke forth against this unprovoked insolence; but Philip, with wonderful coolness and moderation, silenced the clamor by saying, "let this ridiculous brawler depart unmolested." He then turned to the other ambassadors, and bade them tell their countrymen that those who can utter such outrages are less just and moderate than he who can pardon them.

PATENT AGENCY.

THE UNDERSIGNED, for the last three years Examiner in the Patent Office of the United States, has established an agency at Washington City, to accommodate persons desirous of obtaining patents for improvements in the useful arts.

As it is important to Patentees that their business should be attended to with promptness and fidelity—their interests frequently suffering from the delays growing out of the return of their papers for amendment, when drawn up by themselves or persons not acquainted with the business—it is evident that a great advantage will be derived from the employment of a proper person in the first instance.

An experience of three years in the Patent Office, during which period hundreds of inventions have been examined by the undersigned, has fully qualified him, he thinks, to serve as a Patent Agent, with the greatest possible advantage to those who may favor him with their patronage, as from his acquaintance with the forms of the office and inventions already patented, he will be enabled, in drawing up the papers of applicants, to avoid whatever might delay or prevent the issuing of a patent. His experience will enable him also to furnish information to persons respecting the novelty of their inventions, before they are submitted to the office, so that they may avoid the expense attending unfavorable applications for patents.

In every thing relating to his profession, embracing the application of chimistry to the arts, improvements in surgical instruments, &c., the undersigned will be able to render important assistance to inventors.

Having established agencies at London and Manchester, in England, he will be able to secure patents in that country, and prepare all the necessary papers with the greatest promptness and dispatch.

Inventors need in no case subject themselves to the expense of visiting Washington, as by forwarding to the Patent Office a model, where the invention is a machine—or a specimen, where it is a composition of matter—and sending a short description explanatory of its nature, &c. to the undersigned, all the necessary papers and drawings can be prepared and sent to the applicants for their signatures.

Models and papers can be forwarded to the Patent Office free of expense, by being delivered to the Collectors of the different ports. In the city of New York, the undersigned has an agent—M. Levy, 65 Maiden Lane—who will immediately forward by railroad all models and papers placed in his care for this purpose.

An Architect and Engineer, employed for the last four years as a Draftsman in the Patent Office, will attend to the execution of all the necessary drawings required by the undersigned in his business. Those who may prefer to draw up their own specifications, can have their drawings executed by him with the greatest accuracy and on the most reasonable terms.

Communications *postpaid*, addressed to the undersigned, will be immediately attended to. In all cases where information is required, a fee of five dollars must be enclosed.

T. W. DONOVAN.

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